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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,787	07/23/2003	Robert C. Klein JR.	126709.301	8895

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EXAMINER

DIMYAN, MAGID Y

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/625,787

Applicant(s)

KLEIN, ROBERT C.

Examiner

Magid Y. Dimyan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-13,16,17,20-28,31,32,35-43 and 46 is/are rejected.
- 7) ☒ Claim(s) 3,4,14,15,18,19,29,30,33,34,44 and 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/23/03 and 1/5/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is pertaining to Application No. 10/625,787, filed 23 July 2003. Claims 1 – 46 remain pending in this Application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 5, 7, 9 – 13, 17, 20, 22, 24 – 28, 32, 35, 37 and 39 – 43 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,742,170 to Elzinga et al. (hereinafter, "Elzinga").

4. Regarding claim 1, Elzinga discloses an interconnecting element structure comprising: an array of elements and a plurality of connection path segments (see Figs. 4A, 4B; col. 20, lines 5 – 13), wherein: each connection path segment links two of the elements, the elements include edge and interior elements, the array is substantially arranged in rows and columns of elements (see again Figs. 4A, 4B and 10A – 10E); each segment in the first subset of the connection path segments links one interior element in the array to another interior element, while each segment in the second

subset of the connection path segments links an interior element in the array to an edge element (see again Figs. 10A – 10E; and at least a majority of the segments in the first subset do not link interior elements that are nearest neighbors to each other in the array (see Figs. 10A – 10E). Thus, Elzinga clearly cites all the claimed limitations.

5. As for claim 2, see Fig. 4A, block 401 which shows how an edge element can be linked to an external element, as claimed.

6. As per claim 5, see Figs. 10A and 10B which show the claimed limitation of at least a majority of the segments in the first subset linking alternating interior elements in the array.

7. Pursuant to claim 7, see col. 1, lines 7 – 11; col. 20, lines 30 – 36; Fig. 14, block 1411, which all teach the logic elements as claimed.

8. Referring to claims 9 – 13, see col. 1, lines 7 – 23; col. 20, lines 5 - 29, which teach the claimed limitations pertaining to data busses, connection paths and data transfer between the elements.

9. Regarding claim 17, Elzinga discloses a conductive structure comprising: an array of elements and a plurality of connection path segments (see Figs. 4A, 4B; col. 20, lines 5 – 13), wherein: each connection path segment links two of the elements, the

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elements include edge and interior elements, the array is substantially arranged in rows and columns of elements (see again Figs. 4A, 4B and 10A – 10E); and no connection path segment links one edge element in a row or column of the array to another edge element in the same row or column in the array (see Figs. 10A – 10E). Thus, Elzinga clearly teaches all the limitations as claimed.

10. Claims 20 and 22 contain the same limitations as claims 5 and 7, respectively, and thus the same rejections also apply.

11. Claims 24 – 28 contain the same limitations as claims 9 – 13, and therefore the same rejections apply.

12. Pursuant to claim 32, Elzinga cites a conductive structure, comprising: a symmetrical array of elements and a plurality of connection path segments (see Figs. 4A and 4B); wherein each connection path segment links two of the elements, the elements include edge and interior elements, and each segment that links one interior element in the structure to another interior element in the structure has a length that is at least as large as the distance between three elements in the array (see Figs. 10B – 10E). Thus, Elzinga discloses the claimed elements.

13. Claims 35 and 37 contain the same limitations as claims 5 and 7, respectively, and thus the same rejections also apply.

14. Claims 39 – 43 contain the same limitations as claims 9 – 13, and therefore the same rejections apply.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 6, 16, 21, 31, 36 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elzinga in view of U.S. Patent No. 6,202,194 to Seningen et al. (hereinafter, "Seningen").

17. Referring to claims 6 and 16, the teachings of Elzinga pertaining to an interconnecting element structure for an array of elements are cited above, and described in more details in his disclosure. However, Elzinga is silent on the use of diagonal lines or symmetrical diagonal lines in his invention. However, Seningen teaches a method and apparatus of routing N signals that indeed uses diagonal routing (see Seningen – Abstract; col. 3, lines 13 – 27; Fig. 8). Since diagonal routing can be used to reduce effective signal coupling between lines (see Seningen – Abstract; col. 2,

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lines 49 – 64), it would therefore be obvious to a person of ordinary skill in the art at the time the invention was made to combine the inventions of Elzinga and Seningen to obtain the same claimed invention.

18. Claims 21 and 31 contain the same limitations as claims 6 and 16, respectively, and thus the same rejections apply.

19. Claims 36 and 46 contain the same limitations as claims 6 and 16, respectively, and thus the same rejections apply.

20. Claims 8, 23 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elzinga in view of Publication No. US 2003/0177450 to Nugent.

21. Referring to claim 8, the teachings of Elzinga regarding an interconnect element structure are recited above. However, Elzinga does not include neural networks in his invention. On the other hand, Nugent teaches a physical neural network design that incorporates nanotechnology and interconnected nanoconductors (see Nugent – Abstract). Since neural networks are computational systems that permit computers to function in a manner analogous to the human brain (see Nugent - page 1, paragraphs 0002 and 0003), and are now under development by many institutions as a next generation VLSI technology, it would therefore be obvious to a person of ordinary skill in

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the art at the time of the invention to combine the teachings of Elzinga and Nugent to achieve the same claimed invention.

22. Claims 23 and 38 contain the same limitations found in claim 8, and therefore the same rejections apply.

Allowable Subject Matter

23. Claims 3, 4, 14, 15, 18, 19, 29, 30, 33, 34, 44 and 45 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

24. The following is a statement of reasons for the indication of allowable subject matter: prior art does not teach the limitation of arranging connection path segments in an array such that a group of the segments in the array form an overall continuous connection path for at least one of the rows.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Magid Y. Dimyan whose telephone number is (571) 272-1889. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

myd
29 August 2005



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